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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/682,028	10/10/2003	Bunshi Kuratomi	501.43128X00	8807
20457	7590	06/20/2005	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			WILSON, CHRISTIAN D	
			ART UNIT	PAPER NUMBER
			2891	

DATE MAILED: 06/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/682,028

Applicant(s)

KURATOMI ET AL.

Examiner

Christian Wilson

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 11-17 is/are rejected.
- 7) ☒ Claim(s) 6-10 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10102003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: search history.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 12 – 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 12 – 16 recite the limitation "the movable pins". There is insufficient antecedent basis for this limitation in the claim. For purposes of examination, it will be assumed that claims 12 – 16 should depend from claim 6, which is the first stated instance of movable pins.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 2, 4, 5 and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by

Shimizu *et al.*

Shimizu *et al.* (US 6,676,885) discloses a method of manufacturing a semiconductor device comprising the steps of forming a board **11**, mounting semiconductor chips **12** over the board, arranging the board over a mold surface of a mold **22** for resin molding and closing a

Art Unit: 2891

mold [Figure 4A], and setting depths of air vents **45a** communicating with cavities of the mold to a fixed value [column 12, lines 60-65] and filling sealing resin **26** in the inside of the cavities.

Regarding claim 2, Shimizu *et al.* further discloses a multilayered printed wiring circuit board [column 10, lines 1-10].

Regarding claim 4, Shimizu *et al.* further discloses a core member **51** formed of resin.

Regarding claim 11, Shimizu *et al.* further discloses a plurality of air vents [Figure 3B].

Regarding claim 5, Shimizu *et al.* discloses preparing a multilayered printed wiring circuit board **11** with a plurality of device forming regions and chip mounting portions in a matrix, mounting semiconductor chips **12** on the chip mounting portions, arranging the board on a mold surface of a mold **22** and closing the mold [Figure 4A] with a cavity **23a** of the mold, setting depths of air vents **45a** communicating with the cavity of the mold to a fixed value [column 12, lines 60-65] and filling sealing resin **26** in the cavity, and dividing the board into pieces corresponding to the device forming regions [Figure 6].

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu *et al.* in view of Saxelby *et al.*

Shimizu *et al.* discloses preparing a multilayered printed wiring circuit board **11** with a plurality of device forming regions and chip mounting portions in a matrix, mounting

Art Unit: 2891

semiconductor chips **12** on the chip mounting portions, arranging the board on a mold surface of a mold **22** and closing the mold [Figure 4A] with a cavity **23a** of the mold, setting depths of air vents **45a** communicating with the cavity of the mold to a fixed value [column 12, lines 60-65] and filling sealing resin **26** in the cavity, and dividing the board into pieces corresponding to the device forming regions [Figure 6]. Shimizu *et al.* does not discuss a plurality of wiring boards. Saxelby *et al.* (US 5,728,600) teaches a molding process where a plurality of boards are mounted in the mold [Figure 19]. It would have been obvious to one of ordinary skill in the art to use the multiple board mounting process of Saxelby *et al.* in the method of Shimizu *et al.* since Saxelby *et al.* teaches that multiple board mounting provides a method of simultaneous resin encapsulation.

Allowable Subject Matter

8. Claims 6 – 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 12 – 16 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the applicant claims in claim 6 movable pins which are formed to project into the air vents formed in the mold.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited prior art teaches methods of encapsulating a semiconductor package with air vents formed around the die cavity.

12. A copy of the EAST search history is enclosed.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christian Wilson whose telephone number is (571) 272-1886.

The examiner can normally be reached on weekdays, 7:30 AM to 4 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Christian Wilson, Ph.D.
Primary Examiner
Art Unit 2891

CDW